What is claimed is: add a7

1. An elevator system without a machine room in which a built-in winding apparatus is installed in the interior of a hoistway for moving an elevator car, which elevator system is characterized in that a movement stroke of a counterweight is shorter than a movement stroke of an elevator car, and a reinforcing installation member is installed across an upper portion of a pair of counterweight guide rails which corresponds to an upper counterweight moving distance, and a pair of counterweight guide rails are integral with the reinforcing installation member, and the built-in winding apparatus is installed on the reinforcing installation member in such a manner that the elevator car is moved by a driving force transferred by a motor roping means.

2. The elevator system of claim 1, wherein said counterweight guide rails have a length shorter than an overall length H of the elevator car compared to the elevator car guide rails.

3. The elevator system of claim 1, wherein an upper marginal length L1 is formed for installing a certain element like a pulley, etc. between the elevator car and the upper portion of the hoistway.

4. The elevator system of claim 1, wherein an end portion of each of the counterweight guide rails is positioned in an intermediate region, and an upper portion of the same is positioned at a lower portion by the lower marginal length L2 compared to the elevator car positioned at a portion lower by the upper marginal length L1

formed between the upper portions of the elevator car guide rails and the elevator car.

5. The elevator system of claim 1, wherein said counterweight guide rails are shorter by the overall length H+upper marginal length L1+lower marginal length L2 of the elevator car compared to the elevator car guide rails, and the built-in winding apparatus is installed in a marginal space S1 formed between the reinforcing installation member fixed at the counterweight guide rail and the lower surface of the elevator car and the elevator car guide rails.

6. The elevator system of claim 1, wherein said upper end portion of each of the counterweight guide rails is positioned in an upper occupying region S3 by the width of the overall length H occupying at the portion when the elevator car is positioned at the highest floor, and the built-in winding apparatus installed on the reinforcing installation member is positioned in an upper region of the upper occupying region S3, so that the upper surface of the elevator car passes through the upper portions of the counterweight guide rails and arrives at the highest floor when the elevator car is moved to the highest floor.

7. The elevator system of claim 1, wherein said motor roping means drives the elevator car which has a relatively longer movement stroke and the counterweight which has a smaller movement stroke at the same cycle and is roped by a partial roping method for decreasing a driving torque of the built-in winding apparatus.

8. The elevator system of claim 1, wherein said motor roping means is roped by a under slung roping method.

9. The elevator system of claim 1, wherein in said motor roping means, an upper end point E1 is a side lower potion of the elevator car, and a lower end point E2 is the reinforcing installation member.

10. The elevator system of claim 1, wherein in said motor roping means, an upper end point E1 of the rope is a fixing portion formed at an upper portion of the hoistway, and the lower end point E2 is an upper portion of the counterweight.

11. The elevator system of claim 1, wherein in said motor roping means, the upper end point E1 of the rope is a fixing portion formed at an upper portion of the hoistway, and the lower end point E2 is a reinforcing installation member.

12. The elevator system of claim 1, wherein in said motor roping means, an end of the rope is fixed at the fixing portion formed at a lower portion of the elevator car, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley fixed at an upper portion of the elevator car guide rail, and the pulley is engaged at the driving sheave of the built-in winding apparatus, and the rope is wound onto the driving sheave and the pulley in a S-shape, and the pulley is fixed at the upper portion of the counterweight, and then the rope is wound onto a lower outer surface of the pulley, and the rope is upwardly moved, and fixed at an end portion of the reinforcing installation member for thereby implementing a 1:2 roping method.

13. The elevator system of claim 1, wherein said built-in winding apparatus is an echo disk.

14. The elevator system of claim 1, wherein said motor roping means is roped by a partial 2:3 roping method and a under slung roping method.

15. The elevator system of claim 1, wherein said motor roping means is roped by a partial 2:$ roping method and a under slung roping method.

16. The elevator system of claim 10, wherein said fixing portion is an upper portion of the elevator car guide rail.

17. The elevator system of claim 10, wherein said fixing portion is a fixing member fixed at an inner wall surface of the hoistway.

18. The elevator system of claim 10, wherein said fixing portion is a fixing member fixed between the upper portion of the elevator car guide rail and the inner wall surface of the hoistway.

19. The elevator system of claim 14, wherein in said motor roping means, one end of the rope is fixed at the fixing portion formed at the upper portion of the hoistway, and the pulley is fixed at lower intermediate portions of the elevator car, and the rope is wound onto the pulley by a under slung roping method, and a pulley is fixed at the upper portion of another elevator car guide rail, and then the rope is upwardly moved and is wound onto an upper outer surface of the pulley, and then the rope is downwardly moved and is wound onto an outer surface of the pulley fixed at an upper intermediate portion of the counterweight, and the rope is upwardly moved

and is wound onto an upper outer surface of the driving sheave of the built-in winding apparatus, and the rope is downwardly moved and is fixed at the upper portion of the counterweight.

20. The elevator system of claim 14, wherein in said motor roping means, one end of the rope is fixed at the fixing portion formed at the upper portion of the hoistway, and a pulley is fixed at lower intermediate portions of the elevator car, and the rope is wound onto the lower surface of the pulley by a under slung roping method, and a pulley is fixed at the upper portion of the elevator car guide rail, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley, and the pulley is fixed at the upper portion of the driving sheave of the built-in winding apparatus in a slant direction, and the rope downwardly moved is wound in a S-shape with a slight gradient with respect to the driving sheave and the pulley, and the rope downwardly moved is wound onto a lower outer surface of the pulley fixed at the upper portion of the counterweight, and the rope upwardly moved is wound onto an upper outer surface of the pulley fixed at the lower portion of the driving sheave of the built-in winding apparatus, and the rope downwardly moved is fixed at the upper portion of the counterweight.

21. The elevator system of claim 15, wherein said in said motor roping means, one end of a rope is fixed at the fixing portion formed at the upper portion of the hoistway, and a pulley is fixed at lower intermediate portions of the elevator car, and the rope is wound onto the lower outer surface of the pulley by a under slung roping method, and a pulley is fixed at an upper portion of the elevator car guide rail, and the rope is upwardly moved and is wound onto an upper outer surface of the

pulley, and the rope downwardly moved is wound onto a lower outer surface of the pulley fixed at the upper intermediate portion of the counterweight, and the rope upwardly moved is wound onto an upper outer surface of the driving sheave of the built-in winding apparatus, and the rope downwardly moved is wound onto a lower outer surface of the pulley fixed at the upper portion of the pulley of the counterweight, and then the rope upwardly moved id fixed at the reinforcing installation member for thereby implementing a 2:4 roping method.

22. The elevator system of claim 15, wherein in said motor roping means, one end of the rope is fixed at the fixing portion formed at the upper portion of the hoistway, and a pulley is fixed at lower intermediate portions of the elevator car, and the rope is wound onto the pulley by a under slung roping method, and a pulley is fixed at the upper portion of the elevator car guide rail, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley, and a pulley is engaged at an upper portion of the driving sheave of the built-in winding apparatus, and the rope is wound onto the driving sheave and the pulley in a S-shape, and a pair of the pulleys are fixed at the upper portion of the counterweight, and the rope moved downwardly from the upper pulley is wound onto a lower outer surface of the pulley, and the rope upwardly moved is wound onto an upper outer surface of the pulley fixed at an intermediate portion of the reinforcing installation member of the built-in winding apparatus, and the rope downwardly moved is wound onto a lower outer surface of the pullet fixed at the counterweight, and then the rope upwardly moved is fixed at a portion of the reinforcing installation member.

23. An elevator system without a machine room in which a built-in type

winding apparatus is installed in the interior of a hoistway for driving an elevator car, which elevator system is characterized in that a pair of counterweight guider rails which guide and support the counterweight are shorter than a pair of elevator car guide rails which guide and support the elevator car, and the built-in winding apparatus is installed in an intermediate region between an upper region formed based on the lower surface of the elevator car when the elevator car arrives at the highest floor of the hoistway and a lower region formed based on the upper surface of the counterweight when the counterweight arrives at the lowest portion of the hoistway, so that the elevator car passes through the built-in winding apparatus and arrives at the highest floor.

24. An elevator system without a machine room in which a built-in winding apparatus is installed in the interior of a hoistway for moving an elevator car, which elevator system is characterized in that the elevator car is positioned at an intermediate portion of the hoistway, and the built-in winding apparatus is positioned in an installation region S2 of a front portion or a rear portion in the interior of the hoistway formed as a traveling marginal space, and the counterweight is positioned below the built-in winding apparatus, and a pair of elevator car guide rails guide and support both side intermediate portions at both sides of the hoistway, and a pair of counterweight guide rails guide and support the front and rear intermediate portions of the counterweight at front and rear portions of the counterweight.

25. In an elevator system without a machine room in which a built-in type winding apparatus is installed in the interior of a hoistway for moving an elevator car, said elevator system without a machine room, comprising:

a construction in which a movement stroke of the counterweight is shorter than a movement stroke of the elevator car, and a reinforcing installation member is installed across the upper portion in the moving interval of the counterweight of the counterweight guide rails which guide and support the counterweight, and a pair of the counterweight guide rails integral with the reinforcing installation member, and the built-in winding apparatus is installed on the reinforcing installation member for moving the elevator car by transferring a driving force by a motor roping means;

a construction in which the built-in winding apparatus is installed in an intermediate region between an upper region formed based on the lower surface of the elevator car when the elevator car arrives at the highest floor of the hoistway and a lower region formed based on the upper surface of the counterweight when the counterweight arrives at the lowest floor, so that the upper surface of the elevator car passes through the built-in winding apparatus and arrives at the highest floor; and

a construction in which the elevator car is positioned at an intermediate portion of the hoistway, and the built-in winding apparatus is positioned at a front portion or a rear portion, and the counterweight is positioned below the built-in winding apparatus, and a pair of elevator car guide rails are installed for guiding and supporting both side intermediate portions of the elevator car at both sides of the hoistway, and a pair of counterweight guide rails are installed for guiding and supporting the front and rear intermediate portions of the counterweight at the front and rear portions of the counterweight.

26. The elevator system of claim 25, wherein an upper end portion of the counterweight guide rail is positioned in an upper occupying region S3 by the width of the overall length H occupied when the elevator car arrives at the highest floor of the

hoistway, and the built-in winding apparatus installed at the reinforcing installation member is positioned in an upper region of the upper occupying region S3, and the upper surface of the elevator car passes through the upper portion of the counterweight guide rail and arrives at the highest floor when the elevator car moves to the highest floor.

27. The elevator system of claim 25, wherein in said motor roping means, one end of the rope is fixed at a fixing portion "b" formed at the lower portion of the elevator car, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley fixed at the upper portion of the elevator car guide rail, and a pulley is engaged at the upper portion of the driving sheave of the built-in winding apparatus and is wound onto the driving sheave and the pulley in a S-shape, and a pulley is fixed at an upper portion of the counterweight, and the rope is wound onto a lower outer surface of the pulley, and the rope is upwardly moved and is fixed at an end portion of the reinforcing installation member for thereby implementing a 1:2 roping method.

28. The elevator system of claim 25, wherein in said motor roping means, an end of the rope is fixed at the fixing portion formed at the upper portion of the hoistway, and a pulley is fixed at both lower intermediate portions of the elevator car, and the rope is wound onto the lower outer surface of the pulley, and a pulley is fixed at an upper portion of the elevator car guide rail, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley, and the rope is downwardly moved and is wound onto a lower outer surface of the pulley fixed at an upper intermediate portion of the counterweight, and the rope is upwardly moved and is wound onto an

upper outer surface of the driving sheave of the built-in winding apparatus, and then the rope is downwardly moved and is fixed at an upper portion of the counterweight for thereby implementing a partial 2:3 roping method and under slung roping method.

29. The elevator system of claim 25, wherein in said motor roping means, an end of the rope is fixed at the fixing portion formed at an upper portion of the hoistway, and a pulley is fixed at both lower intermediate portions of the elevator car and is wound into a lower router surface of the pulley, and a pulley is fixed at an upper portion of another elevator car guide rail, and the rope is upwardly moved and is sound onto an upper outer surface of the pulley, and a pulley is fixed at an upper portion of the driving sheave of the built-in winding apparatus in a slanted direction, and the rope downwardly moved from the upper conversion pulley is wound onto a lower outer surface of the pulley fixed at an upper portion of the counterweight, and the rope upwardly moved is wound onto an upper outer surface of the pulley fixed at a lower portion of the driving sheave of the built-in winding apparatus, and the rope downwardly moved is fixed at an upper portion of the counterweight for thereby implementing a partial 2:3 roping method and under slung roping method.

30. The elevator system of claim 25, wherein in said motor roping means, an end of the rope is fixed at the fixing portion formed at an upper portion of the hoistway, and a pulley is fixed at both lower intermediate portions of the elevator car, and the rope is wound onto a lower outer surface of the pulley, and a pulley is fixed at an upper portion of another elevator car guide rail, and the rope is upwardly moved and is wound onto an upper outer surface of the pulley, and the rope downwardly moved is wound onto an outer lower surface of the pulley fixed at an upper

intermediate portion of the counterweight, and the rope upwardly moved is wound onto an upper outer surface of the driving sheave of the built-in winding apparatus, and the rope downwardly moved is wound onto a lower outer surface of the pulley engaged at a pulley connection portion of the counterweight, and then the rope upwardly moved is fixed at the reinforcing installation member for thereby implementing a 2:4 roping method and under slung roping method.

31. The elevator system of claim 25, wherein in said motor roping means, an end of the rope is fixed at the fixing portion formed at an upper portion of the hoistway, and a pulley is fixed at both lower intermediate portions of the elevator car, and a pulley is fixed at an upper portion of another elevator car guide rail, and the rope is upwardly moved and wound onto an upper outer surface of the pulley, and a pulley is engaged at an upper portion of the driving sheave of the built-in winding apparatus and is wound onto the driving sheave and the pulley in a S-shape, and a pair of pulleys are fixed at an upper portion of the counterweight, and the rope downwardly moved from the upper pulley is wound onto a lower outer surface of the pulley, and the rope upwardly moved is wound onto an upper outer surface of the pulley fixed at an intermediate portion of the reinforcing installation member of the built-in winding apparatus, and the rope downwardly moved is wound onto a lower outer surface of the pulley of the counterweight, and an end of the rope upwardly moved is fixed at a portion of the reinforcing installation member for thereby implementing a partial 2:4 roping method and under slung roping method.